ABSTRACT OF THE DISCLOSURE

There is disclosed a method of producing an SOI wafer in which an SOI layer is formed on a buried oxide film by, at least implanting at least one kind of ion of hydrogen ion and a rare gas ion into the surface portion of a bond wafer to form an ion-implanted layer, bonding the bond wafer and a base wafer to each other through an oxide film, and delaminating the resultant bonded wafer at the ion-implanted layer, wherein assuming that X [nm] represents the thickness of the buried oxide film and Y [nm] represents the thickness of the SOI layer in the SOI wafer immediately after delaminating at the ion-implanted layer, when the thickness X of the buried oxide film is $X \leqq 100$, in forming the ion-implanted layer, the ion implantation is carried out with the ion implantation conditions being set such that the sum X + Y of the thickness of the buried oxide film and the thickness of the SOI layer satisfies $X + Y > 1500 - 14X$, after which the bonding process and the delaminating process are carried out and, thereafter, a thinning treatment of the SOI layer is carried out to make the SOI layer into a thin film having a predetermined thickness. Thereby, there can be provided a method of producing an SOI wafer capable of producing a high-quality SOI wafer at a high yield without generating any blister and any void.